

Marine Corps Combat Development Command

Non-Lethal Capabilities available for accelerated development in response to OIF II

Introduction: The information contained in this document is intended to serve as a guide to non-lethal and enabling capabilities that can be fielded in the near term or programs of record that can be accelerated to respond to urgent requirements. Issues of concern with individual devices and cost estimates are included where available. The primary points of contact for additional information are as follows:

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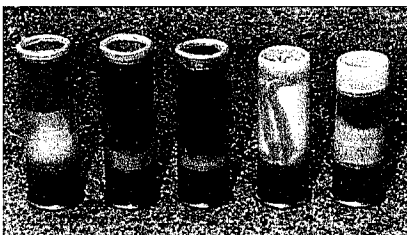
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1.0 Non-Lethal Capability Set (NLCS) (in inventory)

The NLW Capability Set (NLCS) is a versatile package of NL force protection equipment, training devices, support equipment and weapons. These NLCS's are prepositioned around the world for quick access when needed. Non-Lethal ammunition is stored at ammunition storage points and drawn when needed. The items provide a Marine with the capability for effectively controlling the non-traditional battlefield, within the constraints levied by Rules of Engagement (ROE), by mitigating casualties and minimizing collateral damage. The USMC 200 Man Infantry Company NLCS (approximately 80 fielded) consists of 37 items and costs ~\$127K each. The USMC 50 Man Infantry Platoon NLCS (approximately 33 fielded) consists of 37 items and costs ~\$45K each.



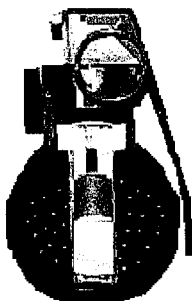
12 Gauge Rounds – These include: 1) Flash-Bang Rounds fired between 10-75 meters about 5 meters above the crowd, 2) Square Bean Bag Rounds (Point Target) with 5-15 meter effective range, 3) Sock Rounds (Point Target) with 5-30 meters effective range, 4) Fin Stabilized Rounds (Point Target) with 10-20 meters effective range, 5) Multi-Rubber Ball Round (Area Target) with 10-20 meters effective range. The rounds cost between \$4 – 6 per round.



40mm Rounds – These include: 1) Multi-Rubber Ball “Area” Rounds with 10-30 meter effective range, 2) Sponge “Point” Rounds with 10-50 meter effective range and 3) Foam Rubber Baton (3) rounds with an effective range of 10-20 meters. They cost \$19, \$28 and \$19 respectively.



Diversionary / Flash Bang Grenade – The USMC MK-141 Grenade is intended as a diversionary / Flash-Bang device. These grenades are designed to be thrown into a room (through an open door, window or other opening) where it delivers a loud bang and a bright flash for 2-4 seconds distraction / disorientation. The USMC grenade costs \$33 per grenade.



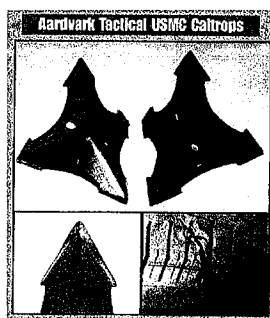
Stingball Grenades – The grenade consists of an M201A1 equivalent fuse, a separating fuse body, a black powder separation charge, a pressed black powder delay, a bursting charge of flash powder, approximately 100 rubber pellets and a rubber grenade body. A typical Marine can throw this grenade 35-50 meters. Using a launching cup, it can be shotgun launched out to 100 meters. The unit cost is ~\$27 each.



OC Dispensers – These include:

- 1) Individual Riot Control Dispensers (USMC – OC) delivering ~ 20 one-second bursts out to 12-15 feet.
- 2) Mid Size Riot Control Agent Dispensers (USMC – OC) delivering ~ 18 three-second bursts out 20-25 feet and
- 3) High Volume Riot Control Agent Dispenser delivering 12 one second bursts 25-30 feet.

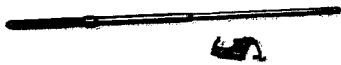
Cost is \$8, \$27 and \$300 respectively.



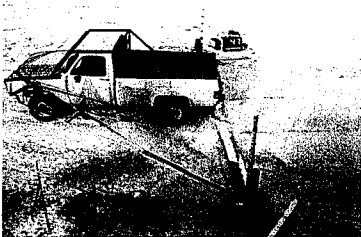
Caltrops – Caltrops (Tire deflation device) are designed to deflate tires or to deny vehicle access to a designated area. They cause irreparable, immediate and catastrophic failure of pneumatic tires. Caltrops will deploy in an upright position no matter how they are dispensed. They are made from heavy gauge steel and powder coated to prevent corrosion. The “Nesting” design makes them stackable for storage. “Stringing Holes” allow groups of caltrops to be joined together with 550 cord or communication wire. Cost is \$11 each.



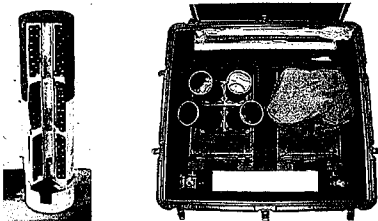
Stinger Spike Strips – This Area Denial to Vehicle weapon is deployed across the road where the targeted vehicle will drive over it. As the vehicle drives across the strips, tiny needles become imbedded in the pneumatic tires that immediately begin to deflate the tires. It takes approximately 10 seconds to deflate the tire which allows for controlled deceleration. Cost is \$475 each.



Expandable Riot Baton – Specially designed and made for U.S. Military Forces for Riot Control Operations. It weighs ~ 35 ounces and is 23 inches long (compressed) and 36 inches long (extended). The handle is 1.25 inches in diameter and has a non-slip type surface. This black baton is durable, shock resistant and can be used with either the right or left hand. There is a mounting device that attaches to the Military Police ensemble pistol belt. It costs ~ \$74.



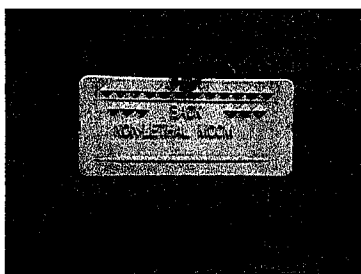
Portable Vehicle Arresting Barrier (PVAB) – Pre-emplaced, mechanically activated capture system capable of stopping a 7,500 pound vehicle traveling up to 45 mph within 200 feet. PVAB provides area denial to a vehicle at a checkpoint or entryway into a high value asset or facility. The Unit Price is \$37K.



66mm Vehicle Launched Non-Lethal Grenades (VL NLG's) –

Comprised of flash-bang grenades (M-98, Unit Price \$134 each), stingball grenades (M-99, Unit Price - \$123 each), an adjustable aiming bracket and an installation hardware kit for installation on HMMWVs (Kit Unit Price \$5,440 equips two vehicles). This capability is used for crowd control. Each grenade has three submunitions with a 10 meter (M-98) and 5 meter (M-99) effective radius. The aiming bracket launches the grenade at distances of 50, 75 or 100 meters. The M-98 & M-99 grenades are in production with a planned fielding date in Dec 03. The USA and USMC also have L-96A1 Riot Control (CS) Grenades (65-95m range) and M-90 Smoke Grenades (30m range) in use now. The Army is the Lead Service.

1.1 NLCS items not fielded by USMC



Modular Crowd Control Munition (MCCM) – A command detonated Non-Lethal munition with 600 .32 caliber rubber balls. The MCCM uses a Modernized Demolition Initiator (MDI), 100' Shock / Blasting Tube & M81 Igniter. The MCCM has an effective range of 5-15 meters and is used to increase stand-off distances, disperse crowds when integrated into a layered perimeter defense. The unit price is \$411. The Army is the Lead Service and has fielded the device. (USMC did not procure the device due to unresolved concerns with effectiveness)



40mm Non-Lethal Crowd Dispersal Cartridge (NLCDC) – This round contains 48 -.48 caliber balls and is fired from the M203 Grenade Launcher to deter, delay and/or distract for crowd control. It has a 10-50 meter effective range and provides a deterrent effect on target. The Unit Price is \$17. The Army is the Lead Service and has fielded the munition.

2.0 JNLWP Acquisition Programs (will require program acceleration)



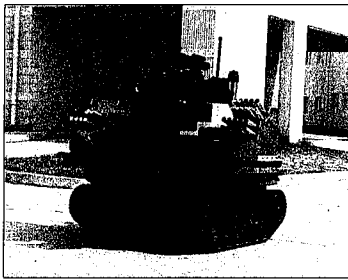
MK19 Non-Lethal Short Range Munition – This effort will fill an immediate need for rapidly delivering a blunt trauma effect by the Mk-19 grenade machine gun, crew-served system. This capability will provide crowd control capability from 10 to 50+ meter effective range. The MK19 NLSRM engineers are developing blunt trauma rubber projectiles, using a ballast cartridge configuration, and has a feature to power the weapon mechanism for rapid-fire. The Army is the Lead Service



Mobility Denial System (MDS) – A Man-Portable (Backpack) Dispenser (MPD) and a Vehicle (HMMWV) Transportable Dispenser (VTD) are being developed to dispense Anti-Traction Material (ATM) that can be dispersed over roadways and walkways to prevent the movement of unfriendly personnel or vehicles. Prototypes for the two versions have not been delivered but the rough estimated cost is \$4K for the MPD and \$30K for the VTD. The ATM's applied cost is \$.54 per gallon. The system is scheduled for developmental and operational testing upon delivery of the prototype. The Marine Corps is the Lead Service.



Running Gear Entanglement System (RGES) – RGES is boat launched entanglement system that can stop high-speed small boats by entangling their propeller. The RGES is planned to be dispensed from Rigid Hull Inflatable Deployable Pursuit Boats. The device is currently undergoing operational testing. A static barrier version has also been fielded by the USCG which can be deployed around a high value asset or facility for defense against propeller driven craft. Rough estimate for production versions is \$10K-\$12K apiece. The Coast Guard is the Lead Agency. Point of Contact is Mr. Neal Armstrong, (202) 267-2572; NArmstrong@comdt.uscg.mil.

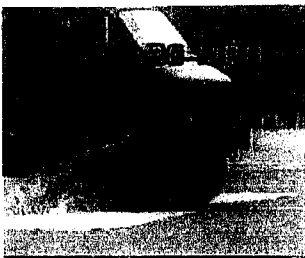


Tactical Unmanned Ground Vehicle (TUGV) NL Payloads – The USMC is developing NL Mission Payload Modules (MPM) for integration onto the TUGV. Current experimentation models have an FN-303, LVOSS 66mm NL grenade launchers, and multi-tube 40mm Venom® launcher (shown mounted on vehicle). The NL MPM is being designed to be modular for the TUGV with the capability to be mounted on an alternate type of vehicle or on a fixed site; allowing the operator to remotely fire NL payloads. The Marine Corps is the lead service.

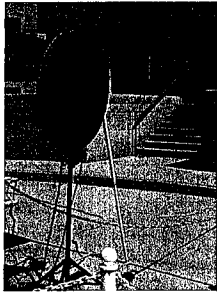
3.0 Other Commercial Off the Shelf/Non Developmental Item (COTS/NDI) NLW Capabilities



Taser – The M26 Advanced Taser and X26 Taser weapons cause Electro-Muscular Disruption as a safe and effective way to incapacitate personnel at distances up to 21 feet. A pronged dart strike by this system anywhere on the body, with clothing up to 2 inches thick, will deliver 26 watts of power causing instantaneous incapacitation to the targeted individual. These devices received limited deployment to Operation Iraqi Freedom as a part of the USA NLCS. The estimated cost is \$360 each (M26 Weapon), \$17 each (Air Cartridge) and \$40-\$120 per holster depending upon configuration. The Army conducted a limited Human Effects evaluation and received a safety release prior to their deployment. The Marine Corps has conducted limited testing and evaluation and has identified concerns with ruggedness and survivability.



X-Net - X-net is a man-portable or pre-emplaced spiked net vehicle stopper. Unique barbed spikes on the leading edge of the net pierce and embed in the front tires, the net then entangles the front tires, locks up the running gear and brings the vehicle to a skidding stop. It has been operationally tested on a four-ton truck. This technology is rapidly emplaced (<30 sec) and recoverable if not engaged. This device has been demonstrated to all the services and can provide improve options for checkpoint or cordon and search situations. Approximate production cost is \$1500-\$2000 per device.



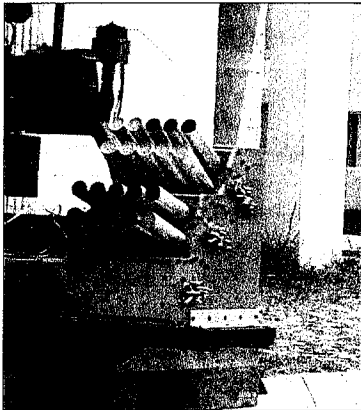
Long Range Acoustic Device (LRAD) / High Intensity Directed

Acoustics (HIDA) – This device delivers highly directed acoustic energy for long-range communication, hailing and unmistakable warning. The array consists of 90 piezoelectric horn transducers in an approximately 33 inch circle that can clearly and effectively communicate out to 500 meters or more. The USA, USN and the USMC are currently evaluating this device. The device can be pintle mounted and has an adapter to attach a phraselater or MP3 player for prerecorded messages. Navy is the Lead Service.



FN303 Fitted Under M16 Rifle

FN-303 – The FN-303 is a compressed air system which launches a variety of 8 gram, 12 gauge size projectiles with an accurate range of up to 70 meters to mark or incapacitate personnel. It is a semiautomatic weapon that uses a 15 round drum magazine. It can mount underneath a M16/M4, weighs 3.5 lbs and is 18 inches long. Cost is approximately \$750. A variety of existing ammunition includes marking (indelible paint) and OC filled rounds. The Army conducted a limited Human Effects evaluation and is in the process of receiving a safety release prior to their deployment.



Venom 30 Round Vehicular NL Munitions Launcher – A launcher that can fire multiple types of 40mm munitions (CS, flash-bang, stingball, smoke). The device can be mounted to a variety of vehicles or fixed sites. It can be triggered via a tethered or wireless system. Approximate costs:

Venom™ vehicular Launcher - \$15,750.00/ea.

Standard fire control panel - \$4,800/ea.

Vehicle mounting kits - \$2,000/ea.

Wireless control – Add \$5,000 per system

Munitions - \$26 - \$48 ea, dependent upon payload

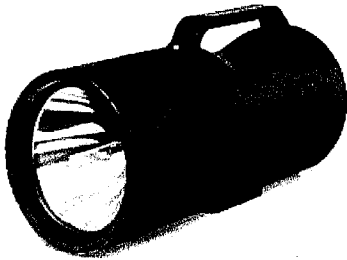


LSS - Lightweight Shotgun System

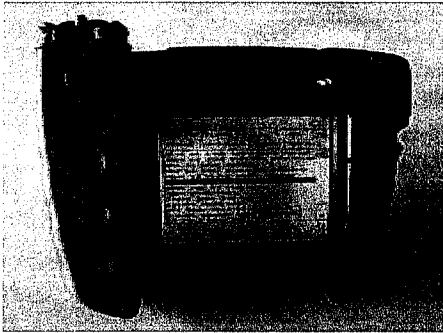
Lightweight Shotgun System (LSS) – The LSS mounts under the barrel of an M16 / M4 or can be used in a stand-alone configuration (Utilizing M4 Pistol Grip / Buttstock and Hand Guard). The LSS utilizes host weapon sighting and weighs less than 3 pounds. It is magazine fed (up to eight rounds) and fires all 12 gauge munitions (Up to 3" Shells). The LSS is estimated to cost \$700 each in a production run of 1,000 weapons and could be available within six months. The Army is the Lead Service.



Rapid Modular Barrier System – Available from Safeguards Technology, Inc. This is a device to rapidly deploy and recover razor wire from towable trailer. Deploy up to 1,000 meters of pre-constructed wire barrier. Recoverable and re-usable. Approx Price: \$85K
Point of Contact: Mike Morgan, BAE, 540-288-5920



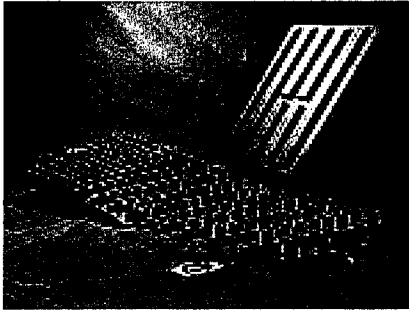
High Intensity Light – Available from Xenonics, Inc. This is a extremely high power searchlight. Uniform beam with ½ - 15 degree beam spread. Waterproof to one meter. Battery powered or 12-32 VDC, 90-240 VAC with converter. IR or UV filter available. Approx Price: \$3000.00
Point of Contact: Mike Morgan, BAE Systems, 540-288-5920



Phraselator – Available from Voxtec. This is a one way, phrase-based voice-to-voice machine translator. It translates English into the desired language for playback. Translates 1000+ phrases into multiple languages. Small and lightweight. Approx Price: \$2,250.00
Point of Contact: Mike Morgan, BAE Systems, 540-288-5920



Catsclaw – Available from Catsclaw International LTD. This is a speed bump type of device that deploys tire shredding spikes upon command from the operator. Provides four wheel tire deflation. The device is portable and has replaceable blades. The internal power source provides 200 cycles per battery charge. Can be used with manual and remote operation. Secure remote deployment capability at over 80 meters. Approx Price: \$22K
Point of Contact: Mike Morgan, BAE Systems, 540-288-5920



Magnum Spike System – Available from Phoenix International, Ltd. This is a tire deflation device. It is designed to penetrate and cut run flat and self-sealing tires. Portable, lightweight, easy to deploy and re-useable.
Approx Price: \$325.00
Point of Contact: Mike Morgan, BAE Systems, 540-288-5920